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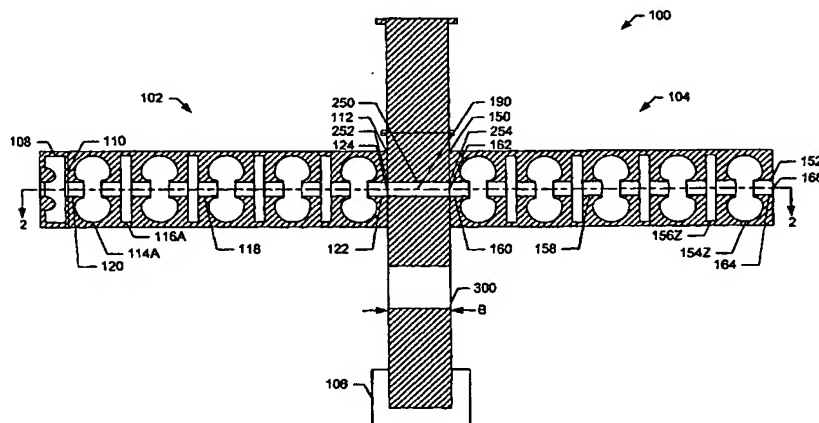
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(54) Title: MULTI-SECTION PARTICLE ACCELERATOR WITH CONTROLLED BEAM CURRENT



(57) Abstract: A particle accelerator system, including apparatuses and methods, that is configurable through repositioning of shorting devices therein to operate at different charged particle beam currents while maintaining optimum transfer of electromagnetic power from electromagnetic waves to one or more accelerating sections thereof, and reducing or eliminating reflections of electromagnetic waves. The particle accelerator system includes at least two accelerating sections and an electromagnetic drive subsystem with portions of the electromagnetic drive subsystem being interposed physically between the accelerating sections, thereby making the particle accelerator system compact. The electromagnetic drive subsystem includes, among other components, a 3dB waveguide hybrid junction having a coupling window in a narrow wall thereof which is shared by the junction's rectangular-shaped waveguides. By virtue of the coupling window being positioned in a narrow wall rather than a wide wall, the maximal power of the 3dB waveguide hybrid junction is increased significantly.



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## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H05H 9/00

US CL : 315/505, 500, 507, 501, 502-504

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,744,919 (MISHIN et al.) 28 April 1998 (28.04.1998), Figure 3	1



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